DEFENSE ACQUISITION UNIVERSITY
CON 370 - Advanced Contract Pricing

140521

Course Learning/Performance Objectives followed by its enabling learning objectives on separate lines if specified.

1	**Given data on manufacturer's prices, costs and quantities for a particular commodity, properly evaluate the reasonableness of the contractor's proposed price.**
	Given information on fixed and variable costs, use Excel to determine the unit cost at varying quantity levels.
	Given information on fixed costs, variable costs, and quantity, determine the marginal cost associated with a new customer.
	Discuss a contractor's considerations in using a marginal costing approach versus a full absorption approach.
	Given information on a contractor's historical prices and quantities, assess the reasonableness of their proposed price.
	Given information on fixed and variable costs, use Excel to model the unit cost curve.
	Explain the differences between economies and diseconomies of scale.
	Given data on prices, costs, and quantities, evaluate the reasonableness of the contractor's proposed price using price analysis.
	Given data on prices, costs, and quantities, evaluate the reasonableness of the contractor's proposed price using cost analysis as part of price analysis.
	Given costs and quantities, differentiate the contractor's profit position at various quantities.
	Given a pricing scenario, synthesize the current government statutes, regulations, and policy to construct a position on the adequacy of the data provided by the contractor.
	Describe the attributes of a preferred customer.
2	**Assess the impacts of changes in acquisition procurement policy as it relates to contracting.**
	Summarize the FAR Council's position on the sufficiency of Price Analysis as detailed in FAR Case 2005-36.
	Reconstruct the changes in in contractor data submission requirements as a result of FASA, FARA, SARA, and other pieces of legislation and statute.
	Outline the progression of changes in commerciality and associated price reasonableness determinations as a result of FASA, FARA, SARA, and other pieces of legislation and statute.
3	**Given cost and pricing data – correctly formulate an objective for future prices.**
	Discuss the factors that impact the comparability of prices.
	Given a scenario describing the maturity of an acquisition item and the availability of data, determine the appropriate pricing methodology(s) to use.
	Given data on prices and historical inflation indices, use regression to forecast future indices.
	Given data on prices and historical inflation indices, use moving averages to forecast future indices.
	Given the results from two or more forecasting approaches, distinguish the most appropriate technique to use.
	Given a set of indices, adjust the prices to a common economic year.
	Given data on CLIN content and price, adjust the prices to a consistent content.
	Given data on CLIN quantities and price, model the relationship between price and quantity.
	Given a power model relating unit price to quantity, calculate the slope percentage associated with the exponent of the model.
	Given a power model relating unit price to quantity, calculate the unit price at a given quantity.
	Given a completed price analysis, critique the assumptions, methods, and conclusions.
	Given a data set with a dependent and independent variable, contrast the results of using a factor to model the relationship with that of using regression to model the relationship.
	Explain the underlying assumptions associated with the application of factors in pricing.
	Define the terms used for performance measurement in earned value management.
	Given the information from a contractor performance report, assess the reasonableness of the contractor's estimate-at-completion using three tests of reasonableness.
4	**Use @Risk to correctly assess the implications of the resulting total cost distribution from a Monte Carlo analysis of the input assumptions.**
	Explain the application of risk analysis as it applies to the Carter memo on incentive contracting.
	Outline the key elements of the PGI guidance on using risk analysis on incentive contracts.
	Given a number of cost elements and associated assumptions, use an Excel template to determine the characteristics of the total cost objective.

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	Assess the results of summing three-point estimates to arrive at the total cost distribution with the results of using symmetric approximation to arrive at the total cost distribution.
	Select the appropriate risk distribution based on an assessment of information from subject matter experts.
	Given an input distribution, use @Risk to model the assumptions.
	Given a cost objective where the assumptions of the cost elements have been modeled in @Risk, simulate the total cost distribution.
	Assess the implications to the government at varying objectives and confidence levels.
	Apply the @Risk sensitivity analysis feature to identify the major risk cost elements.
	Assess the impact to the total cost distribution over varying assumptions of the input distributions.
5	**Given a data set, correctly perform the analysis necessary to support a recommendation for the preferred simple linear equation.**
	Given a specification of the relationship between the dependent and independent variables, construct a diagram of the relationship.
	Given a specification of the relationship between the dependent and independent variables, and given an equation, determine if the equation is consistent with the specification.
	Given a regression output, assess the implications of the regression coefficients.
	Given a regression output, assess the implications of the probability associated with the T-statistic.
	Given a regression output, assess the implications of the goodness of fit statistics.
	Given a data set with a dependent and independent variable, determine whether there are univariate outliers.
	Given a regression output, determine whether there are outliers with respect to the predicted values.
	State three investigative steps for outliers with respect to the predicted values.
	Given a regression output, determine whether there are influential observations.
	Explain the implication of an influential observation.
	Given a residual plot, determine whether the residuals are or are not consistent with the expectations for an equation that properly fits the data.
	Given a residual plot, determine if there is nonlinearity in the data.
	Given a cost model decision table, complete the table for each equation under consideration.
	Perform an appraisal of a completed cost model decision table (with multiple simple linear equations) to decide what you would consider to be your preferred equation.
	Determine the relevant range of an estimating equation.
6	**Given a data set, correctly perform the analysis necessary to support a recommendation for the preferred equation, considering both linear and nonlinear equation one-independent variable equations.**
	Given a dependent and independent variable, determine the appropriate X variable transformation based on your assessment of the trend in the data.
	Describe the three nonlinear functions of the power model.
	Given a specification of the relationship between the dependent and independent variables, and given an equation, determine if the equation is consistent with the specification.
	Given a dependent and independent variable, fit the data using a log-log transformation of the X and Y data.
	Differentiate between unit space and log space statistics.
	Given a regression output from a log-log transformation, develop the unit space equation (power model).
	Given a residual plot based on a nonlinear technique, identify whether the residuals are consistent with the expectations for an equation that properly fits the data.
	Given a cost model decision table, complete the table for each equation under consideration.
	Given a completed cost model decision table with linear and nonlinear equations, present a supporting rationale for selecting your preferred equation.
7	**Given a dependent variable and two or more independent variables, correctly perform the analysis necessary to support a recommendation for the preferred equation, considering linear and nonlinear, single and multivariate equations.**
	Determine when sample size constrains the number of independent variables that can be used in an equation.
	Define collinearity (multicollinearity).
	Given a correlation matrix, assess the proper actions to take given the correlation between the pairs of independent variables.

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	Given a regression output, assess the implications of the probability associated with the F-statistic.
	Evaluate a multivariate equation based on the T-statistics for each independent variable.
	Contrast the use of the R-squared and the adjusted R-squared.
	Given a cost model decision table, complete the table for each equation under consideration.
	Given a completed cost model decision table with single and multivariate equations, present a rationale for selecting your preferred equation.
8	**Given a scenario that includes lot size, lot cost (dollars or hours), and related production history, construct a defendable government objective for future production lots.**
	Explain the premises of cost improvement curve theory.
	Distinguish between the unit formulation and the cumulative average formulation of the learning curve.
	Given the cost of a specific unit cost (dollars, hours) and a slope, forecast the value of a unit or lot using the unit formulation of the learning curve.
	Given a first unit cost (dollars, hours) and slope, forecast the value of a unit or lot using the unit formulation of the learning curve.
	Given a first unit cost (dollars, hours) and slope, forecast the value of a unit or lot using the cumulative average formulation of the learning curve.
	Given a first unit cost (dollars, hours) and slope, construct the specific equation for estimating a unit or a lot based on the cumulative average formulation of the learning curve.
	Given the cost of a specific unit cost (dollars, hours) and a slope, illustrate the effects that different slope assumptions have on the estimated production costs.
	Given historical data and information on the impact of a production break, assess the lost learning using the Anderlohr technique.
	Given historical data on a break in production and the lost learning amount from of an Anderlohr technique, forecast the value of future lots using the Retrograde technique.
	Given historical data on a break in production, forecast the value of the next lot of production using varying assumptions with respect to the application of the Anderlohr lost learning factor.
	Construct a defense of the Anderlohr and Retrograde approach with respect to a break in production by reconstructing the competing positions.